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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/797,570 | 03/11/2004 | Ralph Brinkhof | 081468-0308684 | 4827 |
| 909 | 7590 | 10/28/2005 | EXAMINER | |
| PILLSBURY WINTHROP SHAW PITTMAN, LLP | | | KIM, PETER B | |
| P.O. BOX 10500 | | | ART UNIT | PAPER NUMBER |
| MCLEAN, VA 22102 | | | 2851 | |

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/797,570

Applicant(s)

BRINKHOF ET AL.

Examiner

Peter B. Kim

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 32004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments filed on Sept. 2, 2005 have been fully considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 1, 10, and 14, the movement of the substrate that is inclined with respect to both a scanning direction and a direction perpendicular to the scanning direction is not disclosed.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 10, 14, 20, 21, and 25, it is not clear how the substrate is moved along a path substantially parallel to the surface of the substrate and at the same time the path of substrate is inclined with respect to the scanning direction.

The remaining claims, not specifically mentioned, are rejected for incorporating the defects from the base claim by dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-17, 19, 20 and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimoto (6,245,585).

Fujimoto discloses a method for determining at least one of tilt and height of a surface of substrate and a lithographic projection apparatus comprising an assembly (Fig. 1) for determining at least one of tilt and height of a surface of a substrate (109) comprising a radiation system (100), a support structure (104) to support a patterning structure (105), a substrate table (110) configured to support a substrate (109), a projection system (108) and the assembly comprising a sensor (131) configured to measure at least one of tilt and height in more than three different positions (Fig. 3), and a memory (141) to store measurement data for use during a later exposure of the substrate wherein at least one path is partly incline with respect to an exposure scanning direction (col. 5, lines 21-col. 6, line 17, Fig. 3). Fujimoto also discloses measuring tilt and height along at least part of an edge contour of substrate (Fig. 6, col. 6, lines 44-67). Fujimoto discloses a sensor including a plurality of sensing spots (Fig. 2) and sensor being switchable between an on and an off state (Fig. 3). Fujimoto also discloses using the measurement data to adjust a position of the substrate to bring the target portion optimally in the focal plane of the radiation beam (Fig. 3, steps 209, 210).

Fujimoto also discloses a sensor configured to measure at least one of height and a tilt at least three different positions, wherein the substrate table moves along a first axis substantially parallel to the exposure scanning direction and a second axis substantially parallel to the surface of the substrate and orthogonal to the first axis (see Fig. 3).

Claims 1-20 and 25-30 are rejected under 35 U.S.C. 102(a) as being anticipated by Wakamoto (2003/0058423).

Wakamoto discloses a method for determining at least one of tilt and height of a surface of substrate and a lithographic projection apparatus comprising an assembly (Fig. 2) for determining at least one of tilt and height of a surface of a substrate (12W) comprising a radiation system (1), a support structure (15) to support a patterning structure (11), a substrate table (19) configured to support a substrate (12W), a projection system (13) and the assembly comprising a sensor (45) configured to measure at least one of tilt and height in more than three different positions (Fig. 3A), and a memory (17) to store measurement data for use during a later exposure of the substrate wherein at least one path is partly incline with respect to an exposure scanning direction (para 0080, 0081). Wakamoto also discloses measuring tilt and height along at least part of an edge contour of substrate (Fig. 4, 5, 6, 7). Wakamoto discloses a sensor including a plurality of sensing spots (Fig. 3A) and sensor being switchable between an on and an off state (Fig. 4-7). Wakamoto also discloses using the measurement data to adjust a position of the substrate to bring the target portion optimally in the focal plane of the radiation beam (para 0080, 0081). Wakamoto discloses the sensor configured to approximate geometry of the edge contour during a measurement (Fig. 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto in view of Saka et al. (Saka) (6,798,529).

Fujimoto discloses the claimed invention as discussed above; however, Fujimoto does not disclose the substrate moving substantially parallel to a direction of a local tangent to a part of an edge contour of the substrate proximate to the path. Saka discloses the substrate moving substantially parallel to a direction of a local tangent to a part of an edge contour in Fig. 17 and col. 19, lines 13-40. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the substrate movement of Saka to the invention of Fujimoto in order to obtain more reliable measurements as taught by Saka in col. 19, lines 13-40.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:00 AM - 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim
Primary Examiner
Art Unit 2851

October 25, 2005